The ANTIQUE RADIO GAZETTE

OFFICIAL PUBLICATION OF THE ANTIQUE RADIO CLUB OF AMERICA

VOL. 18 FALL 1990 NO. 3

Jane and Bill Denk (See page 33)

OFFICERS OF ARCA

President:
Lloyd McIntyre
4204 Thorn Apple Lane
Charleston, WV 25313

Vice President:
Ed Lyon
11301 Woodland Way
Myersville, Maryland 21773

Secretary:
Jim and Barbara Rankin
3445 Adaline Drive
Stow, Ohio 44224

Recording Secretary:
Ed Lyon
11301 Woodland Way
Myersville, MD 21773

Treasurer:
Ronald Frisbie
312 South 10th Street
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Send Copy for ADS to:
Mel Comer
205 Roberts Road
Ardmore, PA 19003

Editor: John Drake
P.O. Box 942
23 East Wharf Road
Madison, CT 06443

Television Editor:
Kenneth L. McIntosh
907 Radcliffe Road
Baltimore, MD 21204

Associate Editor:
James L. Troe
111 Skyline Drive
Morristown, NJ 07960

It is our intention to have the Gazette published as closely as posible to the following dates:

March 31 — June 30
September 30 — December 30

The closing dates for receiving material of all kinds in order to have it appear in the next issue would be:

February 15 — May 15
August 15 — November 15

The Antique Radio Gazette is published quarterly in Madison, Connecticut

Yearly dues of $12.00 U.S. currency are payable to ARCA January 1, of each year for members in the USA, Canada and Mexico. Overseas dues are $14, which includes airmail postage.

The Antique Radio Club of America was incorporated in the State of Kentucky, in September, 1972. The first meeting was held at the Marriott Motor Inn, Washington D.C., on September 23, 1972. At this meeting, by-laws were read and approved and directors selected. We feel that the inception of this Club is a giant step in bringing together those individuals whose chief interest lies in the area of early radio. We invite all collectors and historians of the subject to join the club.
A note to Jim and Barbara Rankin, 3445 Adaline Drive, Stow, Ohio 44224, will bring you an application blank by return mail.

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President's Page

As we approach the next few issues of the Gazette, we will be dealing with our Club's future and how we approach the decade of the 90's as an organization responsive to its membership.

As we go to press with this issue, there is a tremendous amount of debate, correspondence, phone calls, etc. on the subject. Our new associate editor, Jim Troe, has contacted many of you for input on articles for the Gazette.

I have been in touch with different members and our directors on the pro's and con's of a permanent convention site.

We are asking you the membership, for the ideas that you would like to see implemented. Now is the time to step forward with your input. We are not looking for a two-page letter, but rather a simple one-line statement or paragraph on your observations and what you would like to see your club be.

I think we can all look with pride at the results of our recent meet in Cincinnati. We made some comments in our last issue, which was running against press deadline.

We have had a lot of favorable letters and comments since the last issue and I think some of those bear mentioning. "Antique Radio Classified's" front cover carried as its theme a contest entry from the ARCA equipment contest and 3 pages covering the event itself. "Radio Age" had 7 pages covering WLW and Crosley, all of which add considerable creditability to ARCA's convention organizational abilities, and lends a great deal of precedence to the idea of moving to various sites for our conventions. Many of these themes and the history these sites offer would not occur if we select a permanent convention location. Still, there are a lot of reasons, such as AWA, ARCI and others have in repeating their annual conventions in the same location. Again, I repeat, we need your input.

Another subject that all serious collectors have got to be asking themselves -"What is happening to our hobby as it relates to the reality of the real world?" For many years ours has been one of obscurity and exclusivity. Now the hobby is out of the closet and is fast becoming a commodity, like antique automobiles, toys, furniture, glassware and hundreds of other collectibles. Supply and demand and the dealer will play an ever-increasing role in the prices we see for a favorite radio. the one disturbing factor that enters into all of this is the apparent and intentional desire of a few to force the price of some types of radios beyond reasonable market prices. The publication of self-serving, narrow interest books, the offering of rewards on national network television, etc. does not serve the best interest of the overall membership and the dedicated historian. I am interested in your feelings on this subject.

Most all collector societies are self-policing and we are no different now from other collector organizations. We will all have to work together and report on observations when we feel there is or has been some misuse of our society's purpose and violation of its long-term goals.

I would like to wish each of you and your families a very pleasant "Thanksgiving" and, for all of us to remember that just when the world community was beginning to look like a better place, a madman such as Saddam Hussein of Iraq let us know that freedom is still something that can be taken away in an instant

Keep those radios tuned in for the next event.

Lloyd McIntyre
President

— LETTERS —

Dear John:

It is time to speak out, although I will admit that I would be surprised if any changes result (which may be the reason that others are not speaking out also).

Although I considered the recent meet in Cincinnati to be successful, I am sure that the majority of those attending would say (as I heard from many) that it was dismal, particularly in terms of turnout. This event is one of only two national events we have, and there are some local radio clubs that have bigger meets!

It is clear that what the national ARCA meet needs is an identity! In other words, we need the meet to be held in the same location YEAR AFTER YEAR AFTER YEAR! As an example most people would say in attending the AWA meet, "are you going to Rochester this year?" rather than "are you going to the AWA meet this year?" Please, pick one location and have our meet there each and every year. It doesn't matter if that location is Baltimore, Louisville, Charleston or anywhere else -- it is only important that it is the **same** location each and every year! I realize that our charter advocates the movement of this meet -- change it!! And don't give me that argument of chosing three locations and alternating between them each year, that is not the solution. Until this change is made, the ARCA national meet will never have a strong "following". If you still feel the need to acknowledge different parts of the country, support and co-sponsor the local clubs, which of course barely existed at the time ARCA was established.

Times are changing, let's see if ARCA has the ability to change with the times also. ARCA's survival hangs in the balance.

Sincerely,
Jim Clark

Dear Jim,

Thanks for your letter of June 26 in which you urge, very strongly, that ARCA holds its National Meet in the same location each and every year.

Since I was not present at the Cincinnati Meet, I do not know how the discussion on that subject went, but I gather from your letter that is was discussed. I know that it was included in Lloyd McIntyre's Agenda for the meeting; the agenda made reference to "selection of a possible permanent location site..." for these meetings. I assume that the pros and cons were pretty fully reviewed, but so far I have not received minutes or any other official report on the proceedings, nor have I heard from Lloyd.

Jane and I have not attended any of the recent ARCA Meets, and we have never had any influence or control over selection of the Meet location. You are right that ARCA was established in part to offer an alternative to the AWA set-up, where all Club officers must reside in the State of New York, and where all meetings were, in general, held in that state. Each arrangement has its pros and cons, and its proponents. Having in mind the great success of AWA, its ground rules must have some real advantages.

Since Jane and I are now completing our final days as Secretary/Treasurer, and as Board Members, we have not taken (and will not take) a position on this important question. We are, however, sending your letter on to Lloyd McIntyre with a copy of this response. I'm sure he will want all the input he can get on this subject. Other than that, we suggest that you write a letter on this subject to our GAZETTE Editor, John Drake, for publication in the GAZETTE. The matter is something that more of our members should be thinking about and expressing their opinions on.

Sincerely,
Jane & Bill

Dear Jim,

First, let me express my appreciation to you for your participation in ARCA '90, and your help in judging the first annual President's award for the Old Equipment Contest.

Very seldom do we receive detailed letters from the membership about their concerns for the club. Ironically, the subject that you discussed was put before the Board last fall and this spring.

The subject of a permanent convention location was put on our agenda so we could receive input such as yours from the Board and the membership.

The plus side of this proposal is obvious: working with one hotel and a local, established convention committee. The minus side is the meet becomes more regional in nature. Attendance from the immediate area constitutes 85% of the attendance. This has now happened to AWA and will become even more so as additional local clubs spring up, and others grow around the country. If you look at the history of ARCA, it becomes apparent that the reasons for the conventions being moved from city to city are varied and important.

The theme of ARCA - "Dedicated to the Historical Preservation of Radio History", has brought many of our members to meets, as we explore the different historical sites where these meets are held. There are usually private museums and landmark institutions in each of these locations. Cincinnati and WLW; Mystic, Connecticut and Ralph Williams' museum; Washington, D.C. and the Smithsonian, etc. Many members attend to see the different parts of the country.

I am leaving the decision to the Board - many of whom received your letter and have called or forwarded their comments to me.

One thing that has greatly affected the hobby is the commercialization of radio collecting. Prices have soared in many areas and supplies of many collectibles are disappearing. From this standpoint, another two or three years will find the serious collector back to the historical documentation of radio and not the collecting of the artifacts itself. Unfortunately, this has happened in many other areas of "antiques and collectibles" and leaves the hobby the pursuit of the wealthy. I have always striven to give all collectors an equal say and to keep the hobby open to all.

I am afraid we look at one part of the meet and maybe draw a conclusion that does not truly reflect the overall convention. It may surprise many that we had 186 registrations and this does not include wives and other family members and approximately fifty (50) guests. We estimated over 400 people participated in this year's event - the largest to date.

When you consider the tours of WLW, Voice of America WCET-TV and the Gray Collection, along with the Crosley home, it makes for a great argument to move on to the next exciting location. I am afraid, Jim, that you will continue to see the flea market become less and less a function, as many of the desirable radios are now in private collections and the balance are traded in ARC. ARCA has been the trendsetter - one has only to look at the programs of all the clubs now in existence and see that over the last 7 years or so that they copy every-function and goal that ARCA creates to the letter. I think we can be proud of that accomplishment. It becomes more and more difficult to be creative when each year something new and exciting must be added.

I trust the Board will act this fall and their decision will meet with the approval of all.

Thank you again for your time and efforts, and we look forward to seeing you in Rochester.

Lloyd McIntyre
President

Dear Lloyd,

With the many changes that are occuring in the administration of the Club, we feel that it is time for a change in the Editorship of the Gazette.

We began in the Fall of 1972, after the first meeting in Washington. With the exception of two or three years, it has been our project ever since.

There is a new spirit evolving in the membership of ARCA and in keeping with this, it seems a good time to put new life in the magazine.

We would like to end our work in December, 1990. The Summer, Fall, and Winter issues would be our responsibility and the new Editor would take over in January, 1991.

You have been a tremendous help in ensuring that we had material and encouraging us all the way. This is much appreciated. Jim Troe's help has also contributed to the success of several issues.

Being the Editor of the Gazette has been a challenge, and we will miss this, but not the responsibility.

Sincerely,
John Drake

Dear Jim,

Your article on the electrolytic detector has a lot of information that I did not have. I was really interested in it. I had not heard that they ever used sulfuric acid and thought that they only used nitric acid. I have an old electrolytic detector receiver, that was made from parts that are shown in a 1911 Electro Importing (EI) catalog. The set is very commercial looking, assembled on an inverted walnut box, and is beautifully finished. The EI parts used are the tuning coil, the electrolytic detector (which seems to be identical to the one shown in your article), and the headphone bypass condenser that has a diagram molded on it that shows how to connect the phones.

Paul C. Crum
W9LC

— NOTICE —

The Board of Directors, by unanimous vote, decreed that the "LIFE MEMBERSHIPS" will be available to the members effective January, 1991.

There are apparent advantages to the member and ARCA. For ARCA it will enhance membership retention and reduce record keeping. For the member, after the dues are paid, no more checks or missed Gazettes; protection against increases in dues; a big vote of support for your club; listing in the "LIFE MEMBERSHIP" section of the Gazette; a distinctive "LIFE MEMBERSHIP" certificate; additional benefits will be added as the Life program matures.

The "LIFE MEMBERSHIP" cost will be $150.00 payable at once or by payment plan of $50.00 each, every 4 months.

Good news for 5-year members - on a one time basis you may upgrade your membership for two additional payments of $50.00. All certificates and club records will be finalized on receipt of your last payment.

Overseas members will be $180.00 or 3 payments of $60.00 each.

Due to the increase in postage proposed by the U.S. Postal Service, all categories of membership dues will most likely increase for 1991. All the more reason to take advantage of the "LIFE MEMBERSHIP" and show your support of ARCA.

If you are upgrading the 5-year membership, be sure to state this to Jim and Barbara Rankin.

Lloyd McIntyre
President

The Albert Moore Editorial Award to Mr. William Hoy

Geoffrey Bourne, President of the West Virginia chapter of ARCA, presenting the J. Albert Moore Editorial Award to William Hoy, this year's recipient.

THE ANTIQUE RADIO CLUB OF AMERICA, INC.
West Virginia Chapter
PRESENTS THE FOURTH ANNUAL
J. Albert Moore Editorial Award
FOR EXCELLENCE IN AN ARTICLE
PRESENTED FOR PUBLICATION IN THE GAZETTE
PRESENTED TO
WILLIAM L. HOY
GEOFF BOURNE, PRESIDENT
WEST VIRGINIA CHAPTER

The Albert J. Moore Educational Award

JUDGING THE OLD EQUIPMENT CONTEST

By Geoffrey Bourne

Every year people ask, "How do you judge the old equipment contest?" Below you will find the criteria that has been set up for the contest. They are:

1. Historical significance
2. Uniqueness and rarity
3. Quality of restoration
4. Illustrative documentation

Each of these criteria will be expanded upon further.

1. Historical Significance
   a. Contribution to the art
   b. Contribution to social history
   c. Possession by a radio "fantastic"
   d. Special circumstances in contestant's family history

Does the entry contribute to the study of communication?

2. Uniqueness and Rarity
   a. Few of a kind vs. production run (uniqueness)
   b. Number originally produced (commonness)
   c. Number surviving (rarity)
   d. Original use and value

Does the entry amplify, illustrate or illuminate a phase of radio not commonly known?
Does it stand out from the rest of the entries?

3. Quality of Restoration
   a. Cleanliness: Internal and External
   b. Craftmanship of repair, mechanical and electrical
   c. Conformance to original design (factory sets)
   d. Restoration and original construction (homebrews)
   e. Parts substitution or rebuilding
   f. Finish: cabinets, parts, wiring, insulation, connections, etc.

Has the entrant done a craftsmanlike job on the restoration? A super finish does not earn extra points; no points are lost for the ravages of time.

4. Supporting and illustrative documentation
   a. Instruction books, service notes, production documents, dealer advertisements, etc.
   b. Construction data, plans for kits
   c. Original constructor's plans or sketches (homebrews)
   d. Company history

Has the entrant made the extra effort to gather the supporting information to tell the story of the set on display?
Does the illustrative material add significance to the entry?
Would the supporting material be competitive by itself?

During the years that I have been involved with the Old Equipment Contest, the quantity and quality have greatly increased. This past June in Cincinnati, Ohio was one of the best contests that we have had. I would like to give credit to Ralph Williams for providing this set of guide lines for the judging of the contest. I hope to see you all at the next national conference. Happy Hunting.

Contest Coordintors
Geoffrey Bourne
Ralph Williams

The Following Awards were omitted from the Old Equipment Contest in the previous Gazette

Special Awards: Peoples Choice Award
Charles Stringer - Doron Brothers Display

Harry Houck Award
Larry Babcock - Radiola Super VIII Portable

Best of Show Award
Charles Stringer - Doron Brothers Display

Presidents Award
Robert Lozier - Kolster-Brandes Masterpiece

The New England Antique Radio Club will hold its Fall Swap & Sell Meet, Saturday, October 20, 1990 at Resurrection Center, 449 Broad Street, Nashua, New Hampshire.

Participating will be club members from throughout New England, New York and New Jersey with over 75 tables of antique and collectible radios, TV's, parts, books, magazines and other related items for sale or trade. Special events of the day will include two old equipment contests featuring Portables and Radio Advertising, as well as a seminar by Alan Douglas on old book and magazine restoration. Members and non-members alike are invited to attend and enjoy a day of radio fun and nostalgia.

Swap meet hours are 8 am to 1 pm. Early buyer admission is $5.00 from 8 am to 9 am and general admission is $1.00 from 9 am to 1 pm. All proceeds to benefit the New England Antique Radio Club.

To reach Resurrection Center, take Rt. 3, Exit 6: Traveling North: Turn left at the light onto Rt. 130 and travel 1½ miles west. Traveling South: Turn right at the light onto Rt 130 and travel 1½ miles west. Watch for the NEARC Swap Meet signs on your right.

For more information about the Swap Meet or membership in the New England Antique Radio Club, call or write: NEARC, RR1, Box 36, Bradford, NH 03221. (603) 938-5051

OUR NEWEST MEMBERS

Oran S. Rowe, Haverhill, MA
Dennis E. Craft, Scottsdale, AZ
Lynn Chupp, Wakarusa, IN
Damon Carron, Wyckoff, NJ
Franklin Corya, Greensburg, IN
Joseph S. Fox, Jr., Poland, OH
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Tom Duero, Cincinnati, OH
Karl R. Koogle, Dayton, OH
Steven C. Linton, Waynesville, OH
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Glenn A. & Maude M. Piar, Medina, OH
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Gary Schneider, North Royalton, OH
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RADIO: AS I EXPERIENCED IT

by Bill Hoy

When the Democratic Party selected Roosevelt as their candidate for president, many of the best minds in the country spoke bitterly against that selection. People in and out of the party complained that FDR was the darling of the idle rich, that he would be most interested in those things which would line his pockets, that he had no experience to fit him for the post, that he had no track record of any kind. In spite of those claims, Roosevelt easily won the election.

The New Deal & Its Influence On Radio

Franklin Delano Roosevelt became the thirty-second president of the United States in 1933, the country has never been the same since. He instituted many laws and regulations controlling the ways business was conducted. Some of these acts were ruled unconstitutional, the majority are still with us.

Most of those changes applied to my business, too. They prevented me setting the charges as I wished, and they required that I keep better records than ever before. No more putting job-cards on work accepted and letting that be it, I now had to keep daily records of each transaction; that was more difficult because I had never owned a cash register. When President Roosevelt introduced all those then considered radical extremist changes, they were said to be communist inspired, and he was accused of trying to become a Socialist dictator. Most of those changes are still with us, they are now taken for granted.

More Problems With Government

Suddenly, I found I had to collect West Virginia sales tax on all charges for work, and keep that tax money separate from all other funds, ready at

all times for examination by agents of the tax department. Needless to say, I purchased a small register. Suddenly, too, shop owners found they had to sign for each order they purchased at wholesale houses, or pay state sales tax which the wholesalers refused to collect. These things caused lots of complaining, but I just accepted them as another part of life. They did amount to an added cost that could not be recovered because sales prices were controlled and could not be increased. In spite of the new regulations, or, perhaps, because of them, Roosevelt's popularity soared. Most people believed he was trying hard to bring the country to recovery.

Manufacturers and designers began changes to conform to the new regulations. As producers, they had an advantage in pricing — they could set any reasonable price on a new product. This resulted in a flurry of new radios to allow adjustment for added costs to follow the new regulations. Almost all those new sets were much better. One point, though, most of those sets had power transformers so overloaded one could fry eggs on them after a short period of operation. Bypass capacitors were short-lived, because their voltage ratings were too low, a measure used to save a few cents on each set. Wire-wound power supply voltage divider resistors often failed, and for the same reason. Crosley built good sets during this time, but they used a Candohm tapped divider in almost all their sets. That Candohm resistor was so failure prone, I kept dozens of better replacements on hand at all times.

Some details of the sets introduced during this period were, more sets with good tone quality, illuminated clock-type dials for easier tuning, more tone controls, better filtering for less hum and better tone quality, larger speakers in console sets.

Short-Wave Set Demand Begins

Interest in true short wave broadcast reception began about this time, Scott All-Wave Superhetrodyne sets began showing up in some homes. I purchased one and installed it in my shop, with the speaker and power supply in a forty-inch square by eighteen inch deep shop-made box, and the open chrome chassis on the top of the box. The whole area I served had difficulty erecting an antenna more than two hundred and fifty feet from a forty-four thousand volt power line serving some coal mine. Those power lines caused a continuous background noise on all stations, so much so that it was all but impossible to listen during the daytime hours. Everyone who came into my shop was excited about the programs and sound quality on shortwave stations of the day. There was so much less noise and interference on shortwave stations. Most people were not able to pay the price of Scott sets, and a nationwide demand developed for store-bought sets able to pick up shortwave stations, and for the special types of antennas supplied with Scott sets. I do not know why, but the shortwave stations had better programs than broadcasters of that time, and reception of them was better during daylight hours. Besides, they had more news programs and listeners wanted all the news they could get.

Speaking of antennas, all sets still required a large outdoor antenna to get good reception; one that operated well for regular and shortwave reception was put on the market by, I believe, the Tobe Deutschmann Corp., a capacitor manufacturer. The kit included a capacitor-rf choke filter for the outlet serving the set. I purchased one and found that, because it used a twisted-pair lead-in with a transformer at each end, it almost eliminated static from the high voltage power lines so common in our area. I left my old one

up, with a switch to change from one to the other. Each time a customer came in, I would show off my new antenna, together with the ac-line filter. No effort was made to sell the antenna, the price was not even mentioned, but I must have averaged one installation a week until 1941. That antenna was actually better than the one furnished with Scott sets and that is saying a mouthful. Later that antenna was discontinued. I dismantled one of the last ones and started making them in my shop. I believe I erected my last one in 1948, just before TV made the scene.

"Wet" Capacitor Hazard

The sets of the thirties all used "wet" electrolytic capacitors in the power supply filters. Those capacitors contained a liquid electrolyte, the "dry" electrolytics were short-lived when subjected to the pulsating-DC of the power supply. The early wet ones were made as two eight-microfarad units in one copper can about three inches in diameter, with the terminals on its insulating top-cover, which also contained a pressure vent covered with a rubber nipple. The vent was to release the gas sometimes formed by even a good capacitor. Sometimes a set would use two or more single units in a copper can about one and a half-inch in diameter. The Gloritone mantel sets used them. Those copper units gave way to aluminum units of the same size, still liquid and with the insulated positive terminal now on the bottom.

Great care must be used anytime one of those sets with a still serviceable wet capacitor is serviced. The capacitor must be checked after a few minutes of operation to see if it is hot to the touch. If it is, it must be replaced. I have replaced many of those units which had exploded when the vent failed to work and the unit was defec tive. I had two explode while I was working on sets, one in a General Electric set in 1938, where the whole top of the capacitor blew off while I was bent over the chassis making tests. I was just fortunate I did not lose an eye, which was struck and severly injured by the flying top of the capacitor. I strongly advise any of you working on a set using the wet capacitor that you wear face and eye protection. This is actually good practice anytime you are doing any kind of work even with hand tools. I learned that the hard way, you get the information for nothing.

NEXT: The E.H. Scott-McMurdo Silver Feud.

My VICTOREEN Superhet Receiver

by Joseph Horvath, W6GAB

For many years I collected old radios so that I would have something to do when I retired. During this time, I found many old, beautiful superhet receivers, sets I admired but could not afford when I was a kid. I saved them for "later on". Now it is later on and I have sold most of my collection because we planned to move. But I did save lots of parts, and (one day) I found that I had enough parts to build an eight tube Victoreen superhet, including a nice old cabinet. The parts and the panel came from a kit, since that is the way most early superhets were sold.

This Victoreen is a relatively easy set to build, so beginners can consider constructing such a set, even today.

The parts are, of course, much more

difficult to find now than they were in the 1920's. Careful search at the flea markets associated with the increasing number of radio club meets, or by advertisement in the various radio publications like this one, can turn up almost anything one needs.

After gathering all of the parts, I recommend that you first check the parts carefully before using them. An ohmeter is an indispensable piece of test equipment. With it you can check for proper continuity of all parts, and later, during assembly, check for good solder joints. Good soldering, is very important. If inexperienced at soldering, a short course at a night school will pay off. The soldered connections on old sets can become oxidized, providing a very high resistance connection, which can cause inoperability of many a receiver, or noisy and erratic operation.

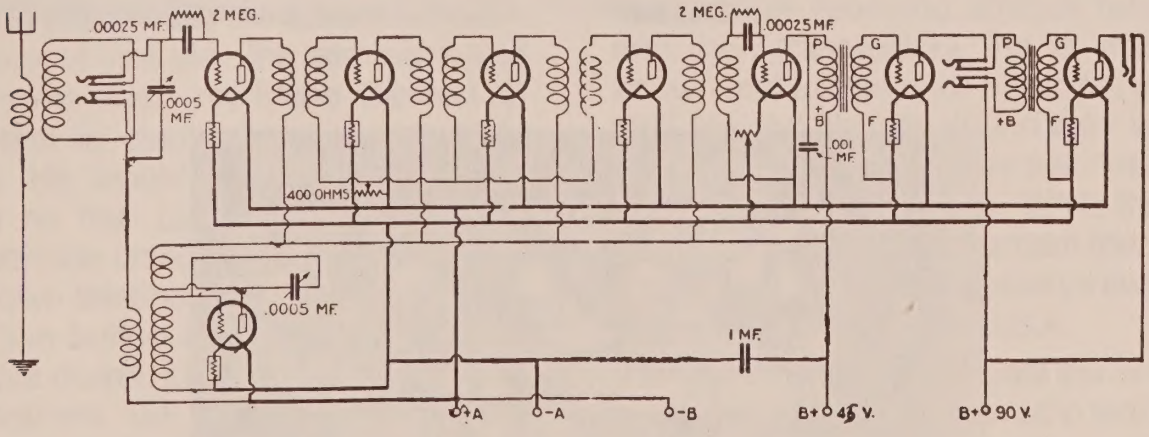
The photographs show how the parts are placed on my set. I used a nice piece of soft wood for the base, so the wood screws used to mount the parts could be driven in easily. I raised the sockets to the level of the plate and grid terminals of the IF transformers, to permit short leads - the grid and plate leads should not be over one inch long. As the schematic shows, a double cir cuit jack at the input permits either a regular antenna or a loop to be used. If you try to use a receiver with a loop inside a stucco building, which uses wire mesh in the plaster, the shield effect will not permit any reception.

You will notice that the two audio transformer negative terminals are connected to the negative side of the amperite resistors, so that a few volts of negative bias is applied to the grids. With only 90 volts on the plates there is enough audio to run you out of the room.

I recommend that you use a 112A tube in the last audio stage for good output. Note that the IF transformers are installed at an angle relative to the panel, and spaced about one inch from each other. This is important. The antenna and loop coupler is the first transformer on the far left. The next four transformers are the IF transformers. The oscillator coil is in the center of the set, just behind the front panel.

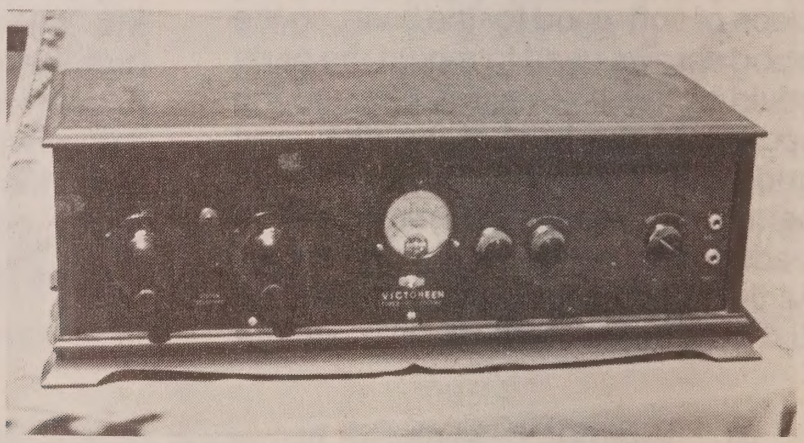
If any of you build this set and run into any trouble, please feel free to contact me. Tell me what the trouble seems to be, and include a self addressed stamped envelope. I will do all I can to help you, even if you are new to our collecting fraternity. Have fun and good luck!.

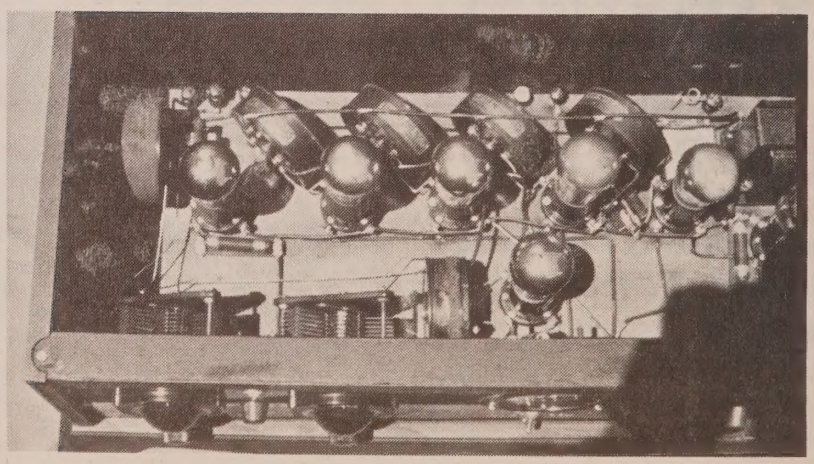
522 Third Street
San Rafael, CA 94901



PARTS LIST FOR VICTOREEN
Super-Het receiver

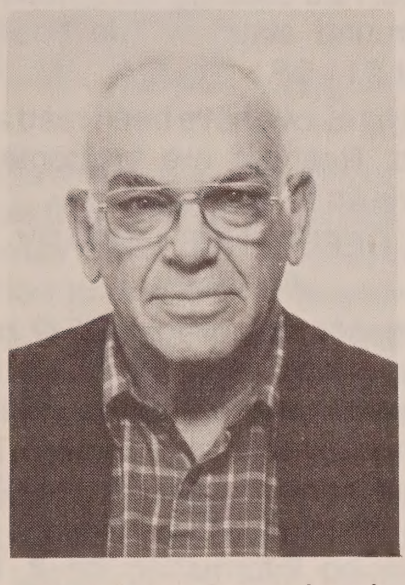
4 - Victoreen R.F. Transformers.
1 - Oscillator coil.
1 - Antenna Coupler coil.
All six transformers should be matched set. They generally are.
8 - Vacuum tube sockets, depends on which type of tube you use, UV or UX
2 - Good make of variable condensers - .0005mfd.
2 - Vernier dials.
2 - Grid condensers with leak mountings.
2 - Leaks, two megohms each.
1 - 400 ohm Pot.
1 - 30 Ohm rheostat
7 - Amperites 1A for 01-A tubes.
1 - 3 or 4 to 1 driver audio transformer.
1 - 2 to 1 output audio transformer.
2 - Double circuit jacks.
1 - Single circuit jack.
1 - Filament off and on switch.
1 - Cabinet with panel to match - what do you have laying around?
1 - Soft wood baseboard.
1 - imfd bypass condenser - 400 volts.
1 - .001 mfd condenser.
7 - 01-A tubes.
1 - 112-A output tube.





MY BUDDY

by Floyd Bennett



Because I have been involved with buying, trading, selling, swapping, restoring, old radios for a long time, I have become acquainted with and have come to admire and highly respect the skills of a very fine gentleman. He has become a dear friend and a most capable source of help to me. I would like to relate briefly the story of his life and accomplishments.

My friend was born in a rather remote area of northern New York State. This fact alone may account for his physical stamina and endurance. The winters in northern New York have a reputation for being long and severe. His father was involved with selling and repairing radios, and was an electrician of sorts.

Being exposed to the advanced technology of that era - the late teens and early twenties - my friend showed an interest in electricity at a very early age. He would "hook up" batteries that he had picked up at the local telephone company dump. He made his own telephone from receivers and carbon button microphones - thanks to this dump. Little do we know what treasurers lurk in the confines of a dump - nor what far-reaching possibilities may develop from the precious pieces of junk that can sometimes be found there.

As a youngster, my friend was a great help to his Dad, because he would pick up and deliver customers' 6 volt wet batteries that needed to be charged. He made good use of his hand sled, for he was paid 50 cents per battery - pick up and delivery.

With all the facilities which were available to this young boy, he began building one tube regenerative sets, and than went on to repairing radios for the townspeople. How amazing and unusual to call upon a ten-year old boy to repair an expensive radio! Also, at this early age, he was building ham radio transmitters and talking all over the world with them. He is still a ham operator.

After high school and after completing courses in radio engineering, he went to work for Philco Radio & Telephone Corporation in Utica, NY. From there he moved to Syracuse, and went to work for radio station WSYR as a transmitter engineer. From that beginning, he became a supervisor and was instrumental in installing the first FM Transmitter in Syracuse, NY. This led to his becoming Chief Engineer with responsibility for all of their transmitters. At retirement, after 39 years, he was responsible for the operation of 31 transmitters.

Since retirement, my friend spends many hours repairing antique radios and ham transmitters. He is widely known and admired for his ability and skill. He and his wife spend their winters in Grenada, where he also keeps busy pursuing his hobby. While there he keeps in touch with his ham friends back in the States. He is always aware of the goings on in the U.S.A.

It is now time for me to reveal the name of my good friend - a true radio technician, repairman, ham operator, husband, father, grandfather, and great grandfather. He is **Fran Thisse,** and he resides in Manlius, New York.

A BIT OF HISTORY

DeForest invented the three element audion in 1906. In Laughter's "Wireless Telegraph and Telephone Handbook",dated 1909, he states. "The audion has proven very sensitive in wireless telephony, yet it is doubtful that it will ever come into wide use owing to the difficulty in manufacture and short life. Usually quite a number of audions have to be tested out before one sensitive enough for general use is found.

How fast thereafter things did change!

NEW BOOKS FOR THE RADIO HISTORIAN

For the key collector, there are two new illustrated books available from Artifax Books, Box 88, Maynard, MA 01754: "Introduction to Key Collecting" 64 pages, $9.95, and "Vibroplex Collectors Guide", 87 pages, $14.95. Postage is an additional $2.00.

For the car radio buff, there is a new book available from Thornridge Publishing, Box 11, Jackson, MI 49204: "The Auto Radio: A Romantic Genealogy", by Donald W. Matteson. This is a 296 page book on the history of auto radio from about 1925 on, with particular attention to the period 1925-1929, but on thru the period to 1942. This book is priced at $34.95.

For those interested in aeronautical radio, there is a book available from CRB Research Books, Inc., P.O. Box 56, Commack, New York 11725: "Air Scan Guide to Aeronautical Communications", by Tom Kneitel. This book includes a limited section on the early history of aeronautical radio, which is said to include such gems of information as, "the first American aircraft radio license was issued in 1922, seven commercial licenses were issued during 1922-23, by 1929, two airlines had networks of ground stations that could send one way messages to their aircraft, by 1930 Aeronautical Radio, Inc. (ARINC), that is still active, had established a network of 31 ground stations. The book is priced at $14.95.

None of the above have been read and reviewed. Readers are welcome to send reviews to the Editor.

THE REFERENCE LIBRARY

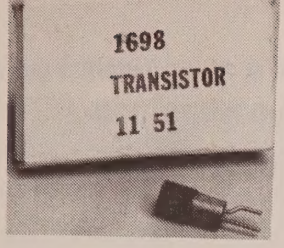
Jim Troe

No responses were received or new questions submitted following the Summer 1990 issue. Could it be that there is no interest in this column. The rules were printed in the Winter 1989 issue. In summary, if you have a set and have no information on it, but would like to find an early magazine article on the set, we will list your need, in the hope that someone will write in to say that the such and such magazine issue carries a story on the set. We will print the responses in the next issue for the benefit of all who wish to keep a file of such references.

I did find one reference relative to a past request:

WARE Type T, Radio Engineering, Sept. 1924

Radio News, March 1925.



TRANSISTOR TOPICS

By ROSS SMITH

THE FIRST RAYTHEON TRANSISTOR SET MODEL T-100 MADE IN 1955

The first Raytheon transistor set was larger than a shirt pocket size but was a small radio with a wrist-chain attached to one end. It measured 6 ¼" long, 3 ½" wide and 1¾" high. It was made in the Raytheon Belmont Division Plant at 5921 W. Dickens Avenue in Chicago.

According to Mr. Frank M. Dukat, retired director of the Raytheon Application Laboratory, a young engineer by the name of Bill Sheean designed and built the first protoype receiver under his direction. Mr. Sheean and Mr. Dukat took the prototype to Chicago for a demonstration before the Belmont Division management. It was received with enthusiasm and the decision was to place the set in production as soon as possible. The prototype used separate mixer and oscillator transistors permitting use of AVC on the mixer. This resulted in better AVC action and overload capacity. However, because of the high cost of transistors at that time, a single composit mixer-oscillator was used in the final production model. In order to achieve reasonable gain, it became necessary to make up matched sets of transistors for the first production models.

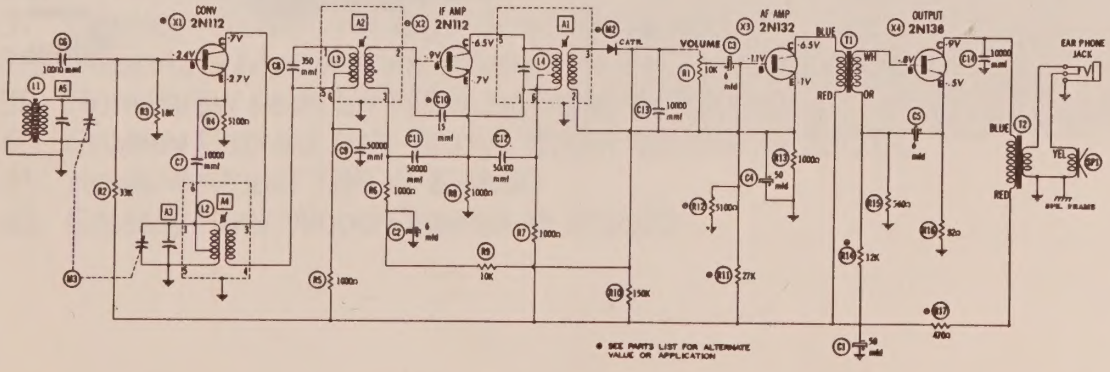
Raytheon supplied all of the transistors for the first sets. 2N112/CK-760's were used for the mixer-oscillator and for the 455 Kc IF amplifier, CK-706A or 1N295 was used for the diode detector. A 2N132 was the first AF amplifier and 2N138's were used for the audio output.

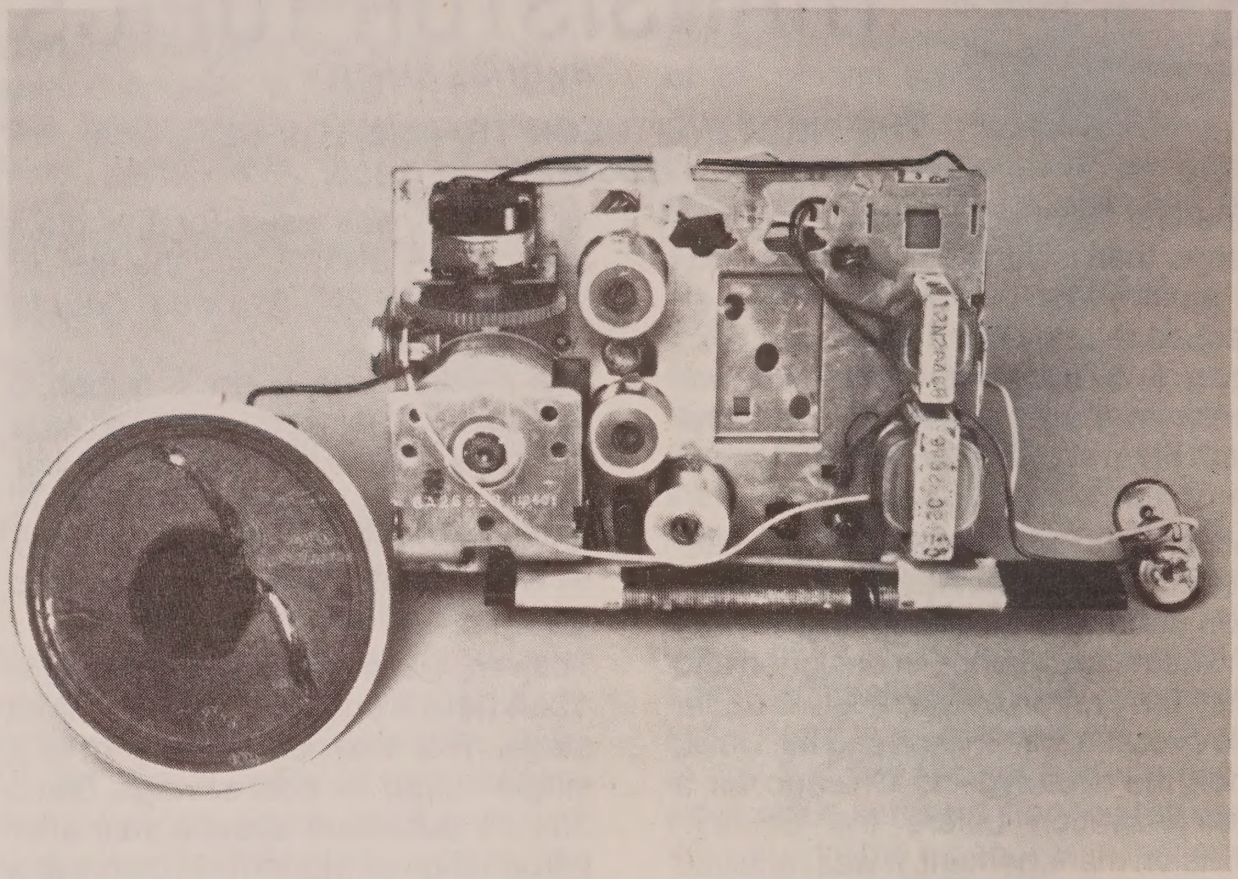
The plastic cases were furnished in five color combinations with the case one color and the speaker grill another. Model T-100-1 is black and yellow, -2 is ivory and yellow, -3 is black and red, -4 is ivory and red and -5 is ivory and gray.

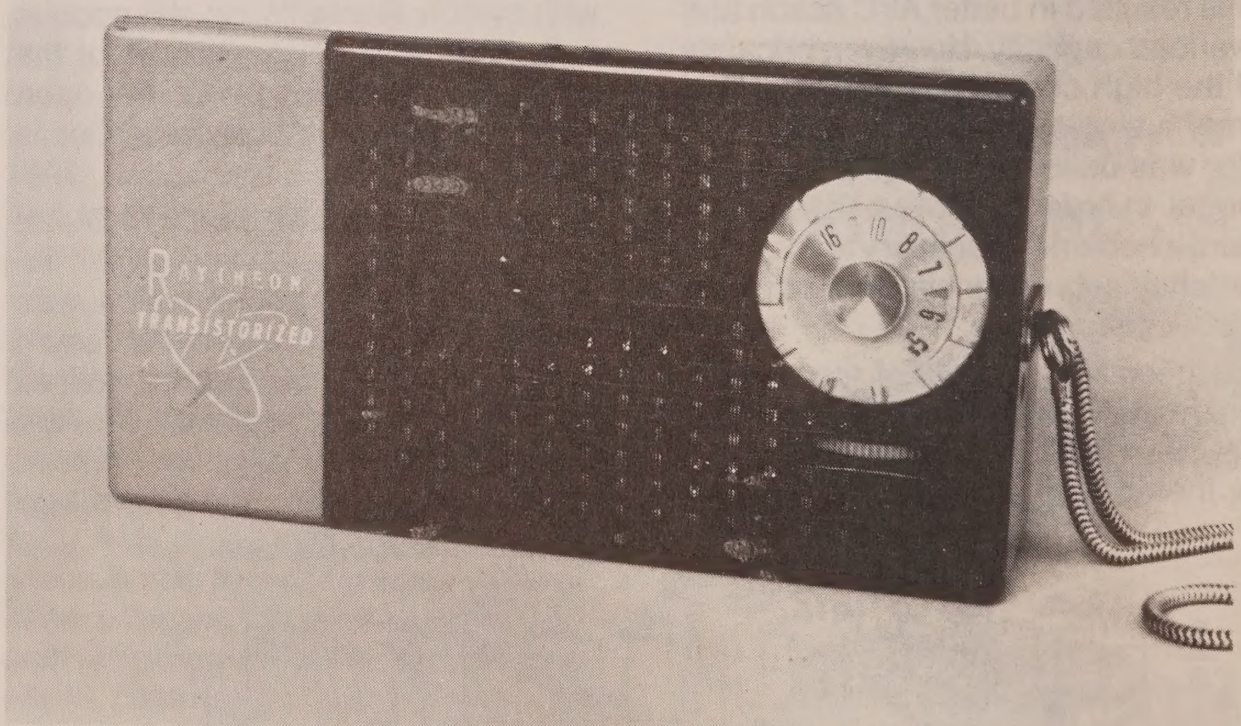
The very first production sets made in 1955 have a push-pull 2N138 output stage. This was later changed to a single output for cost savings. Sams 331-11 published about a year after introduction of Model T-100 shows a single output transistor. Our CTS-Turner Museum radio, pictured here, has push-pull 2N138 output transistors. Our set has a Jensen 2 ¾" PM speaker and a CTS volume control with switch. Reception is still good in spite of the fact that it has all of the original component parts. An open plate two-gang variable capacitor is used for tuning.

We are indebted to Mr. Frank M. Dukat for information on model T-100. Pictured is Model T-100-3 which was presented to the CTS-Turner Museum by Mr. William S. Peters, retired Raytheon Sales Engineer for the Chicago area.

Pictures courtesy of CTS-Turner Museum by Joe Carlson.






RAYTHEON
TRANSISTORIZED

The following is a list of some of the 185 lots that were auctioned at our June 16, 1990, conference in Cincinnati, Ohio.

This was the largest auction that we have seen in many years at an ARCA convention. As always, prices were all over the board.

A big THANKS to Ed Lyon and Debbie Pack, who moved the equipment in record time. I have never been to an auction anywhere that was handled as professionally.

1. HBR (QST) RCVR W/COILS @ $17.50
2. Supreme Tester/Analyzer @ $27.50
3. RCA-Slant Front Wood @ $12.50
4. Eico Scope Model 460 @ $21.00
5. Heath Kit Scope Model 10-12 @ $22.50
6. Battery Radio Music Master @ $9.00
7. Rider #7 TV Manual - New @ $3.00
8. AE1 Signal Generator @ $5.00
9. Murdock Neutrodyne @ $32.00
10. Silvertone Battery Radio @ $20.00
11. Light Bulbs @ $12.00
12. Puritan Radio (Restored) @ $25.00
13. Edison Oil (Battery) Bottles @ $10.00
14. RCA Volt - Ohmyst WV-77E @ $4.00
15. RCA Volt — Ohmyst Junier @ $8.00
16. Jackson Audio Generator @ $6.00
17. Nicely Wired Homebrew @ $22.50
18. Philco 630 @ $27.50
19. Sencore TR 139B Transistor Tester @ $6.00
20. B & K E200D Precision Signal Generator @ $20.00
21. Crosley Model 51 @ $125.00
22. Trego Homebrew @ $165.00
23. Homebrew Voltmeter @ $95.00
24. Homebrew Windup Model @ $50.00
25. Freshman Masterpiece All Tube Plus @ $100.00
26. Atwater Kent Model 20 @ $40.00
27. Atwater Kent Model 20 Tubes & Manual @ $95.00
28. Super Homebrew Tubes Unusual @ $145.00
29. Radio III @ $55.00
30. Crosley Table Model @ $27.50
31. Freed-Eisenmann NR-5 @ $55.00
32. Kellogg Model RFL @ $110.00
33. G.E. Tungar Charger @ $10.00
34. Spartan Model 301 Chessis only @ $67.50
35. Hallicrafters Civic Patrol @ $13.00
36. Tyrman Portable @ $75.00
37. Crosley - Trirdyn All Tags Good @ $80.00
38. Freshman Masterpiece Internal HOrn, Tubes @ $20.00
39. Homebrew uses UV199's included @ $20.00
40. Crosley Cabinet only Trirdyn Super Special @ $20.00
41. Howard Model 780 @ $12.50
42. Crosley Fiver Wood Cabinet @ $12.00

Auction cont.

43. Crosley Fiver Metal Cabinet @ $17.50
44. Crosley XJ Cabinet @ $15.00
45. Work Rite Battery Set @ $25.00
46. Delco White Table Top @ $21.00
47. Atwater Kent 20 @ $90.00
48. Atwater Kent 40 @ $22.50
49. Emberola @ $37.50
50. Crosley 14AG @ $25.00
51. Motorola 5T @ $30.00
52. Philco SW-BC 3-Band Table @ $15.00
53. Hallicrafter S120 @ $8.00
54. Atwater Kent 32 @ $35.00
55. Crosley 66TC @ $18.00
56. FADA BC Wood Table - 263 @ $12.50
57. Monarch BC-SW @ $7.00
58. Crosley 46 FB @ $10.00
59. RCA Victor 3-Band SW Wood Table @ $15.00
60. Crosley 03TAWC SW Wood Table @ $16.00
61. Silvertone Tombstone (Farm Radio) @ $15.00
62. Airline - Farm Radio @ $8.00
63. Philco AM-FM 53-958 @ $5.00
64. Emerson - R167 - Art Deco @ $17.50
65. Philco Model 37-600 @ $16.00
66. RCA Model 85-T @ $17.00
67. RCA Shelf Radio 4 RC-84 @ $3.00
68. Emerson - A130 (1936) @ $17.50
69. Emerson - Model 440 Art Deco @ $22.50
70. Emerson - Model 5107 Excellent @ $28.00
71. Westinghouse Refrigerator Radio @ $21.00
72. Philco #84 - Works @ $50.00
73. Zenith "Long Distance" Portable @ $3.00
74. Readrite Model 610 Radio Tester @ $17.50
75. Stromberg Carlson 1101 @ $17.50
76. Philco Cream Colored Bakelite 48-200 @ $23.00
77. GE Cathedral Model M-51 @ $60.00
78. Murdock Early Electric w/Power Supply @ $22.50
79. RCA Floor Model 811K @ $10.00
80. Acmefley @ $72.50
81. TRIG Regency @ $57.50
82. Nipper - Limited Edition @ $55.00
83. Traveler Rattlesnake Skin Working Model 5028-A @ $27.50
84. Arvin Working Ivory Model 450TL @ $18.00
85. RCA Portable working Model 2B403 @ $25.00
86. Riders Vol. 1 Excellent @ $42.50
87. Riders Vol. II Excellent @ $20.00
88. Riders Vol. III Excellent @ $12.50
89. Riders Vol. IV Excellent @ $12.50
90. Riders Vol. V Excellent @ $20.00
91. Riders Vol. X Good @ $7.50
92. Riders Complete Index @ $2.00

THE CRYSTAL DETECTOR

Jim Troe

Continuing our series on early radio detectors, we will this time look at the crystal detector. When radio collectors speak of a crystal detector, most people immediately think of the cats whisker galena detector popular in the 1920s and used by young experimenters to the present day. However, it was not always so. There were many forms of crystalline detectors before the galena cats whisker.

Ferdinand Braun, a German, discovered in 1874, that certain metal sulfides would conduct an electric current more easily in one direction than in the other. In 1883 he determined that this effect could be used as a rectifier to convert alternating current to direct current. In 1901 he recognized that this effect could be used to detect the hertizian waves. In the United States there was no recognition of the detecting possibilities of such substances until H. C. Dunwoody discovered the detecting properties of carborundum in 1906, and G.W. Pickard discovered the detecting properties of silicon in the same year.

Pickard later reported that Dunwoody knew little about radio and didn't understand what he was doing. Dunwoody's first carborundum detectors were highly unreliable because they were fabricated by winding copper wire around each end of a crystal of carborundum. It is easy to recognize now that his problem was that he had two equivalent rectifying junctions at each end of the crystal, but connected out of phase, so they cancelled each other. Pickard reports that he recog nized even in 1906 what was wrong, and changed the carborundum detector design so that one side of the crystal was embedded in a mass of solder and the other connection was changed to a pointed screw that bore on the crystal. He was thus able to make the carborundum detector useful, and for this contribution was able to patent the carborundum detector. However, it is interesting to note that in a 1915 Navy wireless text the carborundum detector is still called the Durwoody detector.

From 1906 up to World War I many experimenters investigated the detection properties of every conceivable combination of substances. Many pairs of materials were found to be usable as detectors, and some were much more sensitive than others. Among the best were molybdenum sulfide, lead sulfide (galena), and silicon carbide (carborundum). Many combinations were sold using trade names. Popular names at one time or another were the Perikon detector (one side of the detector junction being a mixture of copper and iron sulfide, and the other side being zinc oxide), The Pyron detector (iron sulfide against silicon), and the Bronc cell (Tellerium against graphite). In some combinations the detecting action was at the junction between two dissimilar crystalline materials, and in other cases detection took place between a crystalline material and a metallic contact. With some combinations, the metal contact was a flat plate, in other arrangements it was a blunt point screwed hard against the material. In other cases it was found that a fine wire gently placed against the material provided the most sensitive operation, and thus was born the cats whisker. It is not clear who first recognized that improvement in detecting could be obtained by using a light, fine, cats whisker bearing against galena. However it is interesting to note that Pickard used galena embedded in solder, with a pointed brass contact, as early as 1906, and in 1911 was granted a patent for the cats whisker detector.

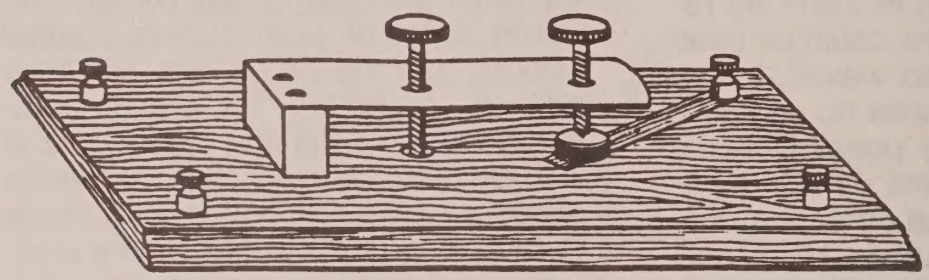
Many of the early crystalline detectors, including the carborundum, worked

much better if a bias voltage of 0.2 volts or so was connected across the detector, in order to move the operating point on the classical voltage/current curve to the most sensitive spot. This was not required with the galena detector, which probably helped its growth in popularity.

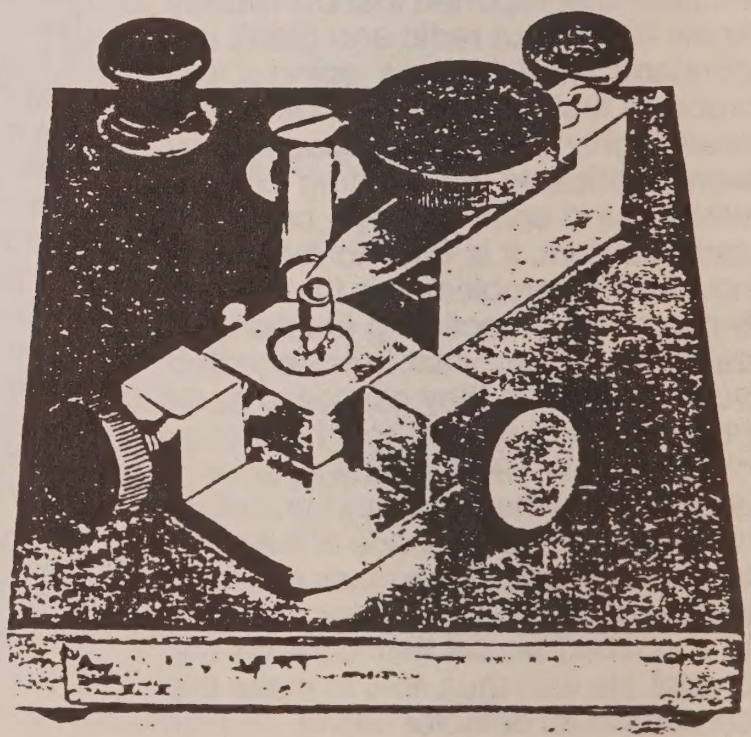
Carborundum and silicon detectors were used commercially on ships into the early 1920s. They were particularly useful in harsh environments because the metallic contact with the crystal could be placed under high pressure, and was therefore not subject to maladjustment due to rough handling. In shore stations, where the environment was more favorable, and frequent readjustment of the cats whisker contact could be tolerated, it was more likely that one would find the more sensitive galena detector.

The carborundum detector faded from use before the galena detector. In fact, galena detectors were used well into the 1920's in many broadcast receivers, particularly reflex designs where tube count was kept to a minimum. The Galena cats whisker detector finally became the toy radio for children, and as such was popular until modern crystals were developed during World War II.

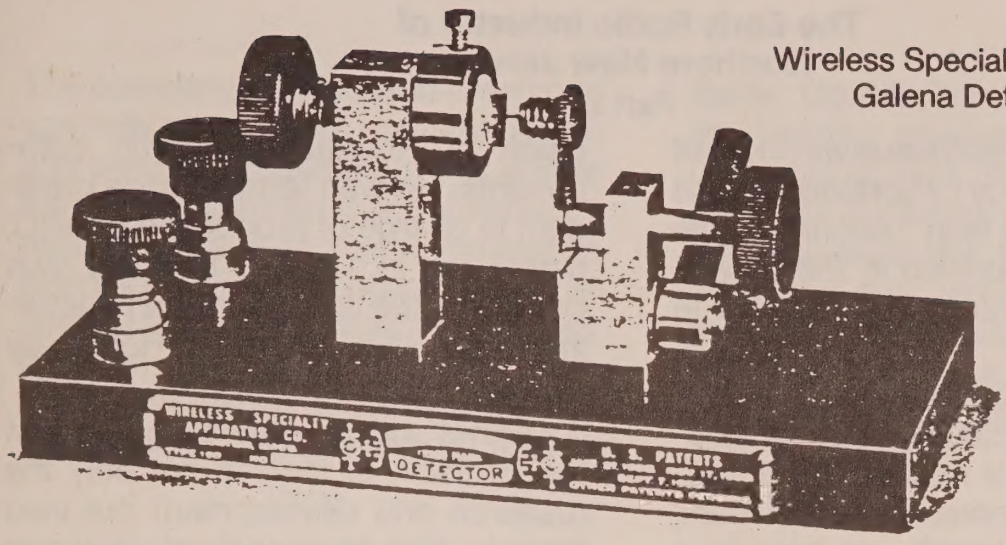
The crystal detector of old is now a collector piece. Finely made detector assemblies, and complete crystal radios, are particularly sought after.



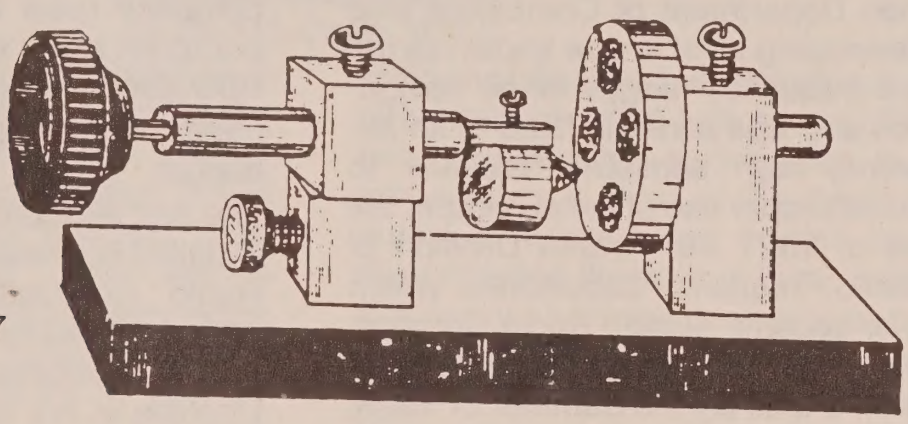
Homemade Silicon Detector - 1909



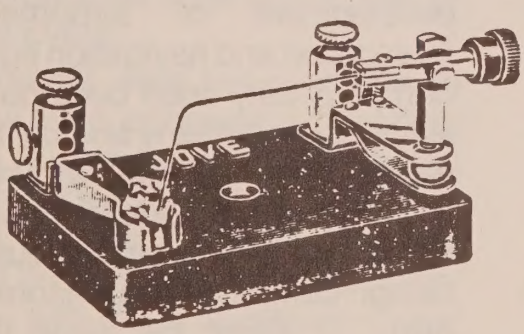
Wireless Special Apparatus Co.
Silicon Detector 1919



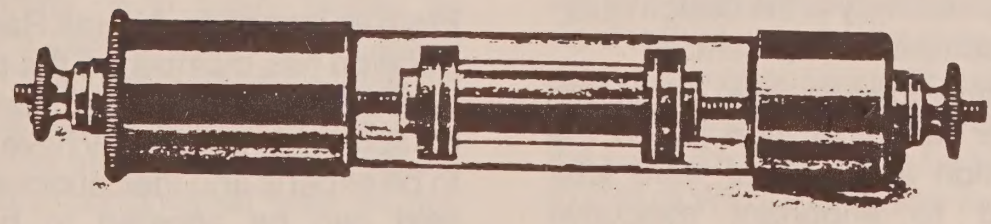
Wireless Specialty Apparatus Co.
Galena Detector 1921



Perikon Detector 1917



J.H. Bunnell & Co. 1921



Pickard Detector (carbon/steel)
1902

The Early Radio Industry of Northern New Jersey

— Part 2 —

In the Summer 1990 issue we covered "Radio Frequency Laboratories". The story continues with "Aircraft Radio Corporation,"as printed in *The Citizen,* a Boonton , New Jersey newspaper, in June 1950.

Aircraft Radio Corporation.

As radio broadcasting grew in popularity, the use of radio for other purposes became increasingly important, particularly in aircraft, not only as a means of communication, but also as a necessity for safe navigation. The then Department of Commerce was developing what is now known as the low frequency ranges for air navigation and was sorely in need of an airborne, high sensitivity receiver to make proper use of the service. In the fall of 1927 the Aircraft Division of Radio Frequency Labortories, which later became Aircraft Radio Corporation, undertook the development of such a unit. By the Summer of 1928, this receiver had been completely developed and had gone through a preliminary production by General Radio Company in Cambridge, and arrangements had been made with Stromberg-Carlson in Rochester for production. In addition, the present airport and the first buildings now occupied by Aircraft Radio Corporation were started. They were completed late in 1928 and about that time the Aircraft Division of Radio Frequency Laboratories became a separate entity, Aircraft Radio Corporation, devoted exclusively to the design of airborne electronic equipment.

Many highly-trained radio engineers and other technical men joined the organization and several were later promoted to important executive positions. One of this group, John E. Johanson, assisted in the design of much of Aircraft's precision components. He was formerly vice president in charge of production of ARC, having left in 1945 to form his own company, the Johanson Manufacturing Corporation located in Rockaway Valley.

It was not until several years later that the decision to include not only the research and development but also the manufacture and sale of electronic equipment under one roof took effect. New buildings were erected as the company grew and today the plant occupies many acres with a modern laboratory building, production departments, warehouses and a large new hanger.

The first airborne range receiver was installed in airmail planes and Aircraft Radio Corporation designed and manufactured the receiving and transmitting equipment used by Jimmy Doolittle in his now famous first all-blind flight in 1929. The design and development of airborne communication and navigation equipment of high quality soon became a specialty of the company and by 1932 the design of lightweight two-way voice communication equipment had been completed which won an industry-wide design competition sponsored by the Army. At about the same time, the Navy accepted a similar design by ARC and 1933 saw ARC designed equipment in the first fighter squadrons of the Air Force and the Navy.

From its inception, Aircraft Radio Corporation has maintained the policy of developing and selling specialized equipment in which they have learned to be experts and their success in this field can be attested to by radio officers and men in both the Air Force and the Navy who have operated the equipment through the years.

The company continues at present to specialize in airborne communication and electronic equipment but, due to the type of personnel and machinery required, has been able to expand its operation into the development of specialized test equipment in this field, including three types of signal generators for testing airborne electronic equipment. The officers of Aircraft Radio Corporation include: Richard W. Seabury, chairman of the board; Dr. Lewis M. Hull, president and treasurer; Dr. Frederick H. Drake, executive vice president; Paul O. Farnham, vice president, research; Nils Sundstrom, vice president, manufacturing; A.W. Parkes Jr., vice president, field engineering and sales; Berton E. Holley, secretary.

THIS Was Broadcasting?

by Paul C. Crum, W9LC

While working with other freshmen in west central Illinois Bluffs High School, and dreaming of some day actually working in a broadcast station , I had little idea of the type of "success" that I would one day attain. That of being in charge of a real broadcast transmitter (100 watt, part time, foreign language Class IV), of being on the air with my own hill billy program, and of being the first to broadcast a particular type of "Special Event."

Such dreams were not permitted to cloud my mind, occupied with getting an Ultra Audion receiver, with its big green spider web coil and WD11 tube, working to bring in WDAF, with the Kansas City Nighthawks, WOS Jefferson City, with Harry Snodgrass playing piano from the Missouri State Penitentiary, and WTAS — whose call letters stood for the initials of the owner's children: Willie, Tommy, Annie, and Sammy — in Elgin, Illinois, all through a pair of black Frost headphones. This was a short time before W9LC came sputtering on the air from an antenna strung between a locust pole and a cottonwood tree, on our family farm.

In a forty year career in major market radio and television broadcasting that, more through blind luck than ability, has permitted my participation in a modest way in most of the developments in these areas, I can't help remembering those days in my primitive, unsophisticated beginning in the industry. It is a pleasant pastime for those who have been in the industry for some time, to tell of their early illegal exploits, such as operating a ham transmitter, before they got their licenses, or doing illegal broadcasting. Although my own beginnings in amateur radio were done with the benefit of a proper license, my participation in illegal broadcasting cannot be gone into in much depth here. In this connection, I will not categorically deny that the high school glee club was broadcast ("with my knowledge") from the stage of the gymnasium, over a transmitter that had been built for military aircraft duing World War One. For those of you who insist on knowing everything about such activities, I will offer the information that the spot on the dial was selected to be very close to that of WLS, the station that broadcast the rurally-oriented music popular in our area.

Out of college, and freshly unemployed after a brief job at Grigsby Grunow, makers of Majestic radios, "Mighty Monarch's of the Air," — when that company had gone abdomen up financially — I prepared to buck all odds and attempt to get a job operating in this very overpopulated labor area. To begin, I picked what seemed to be the most modest station that could be reached by a seven cent streetcar fare. This section was owned by a dealer in luxury automobiles, and was in the rear of his large show room, behind rows of Cadillacs, and several other lower budget cars, manufactured by the parent corporation, of this great group. If there had been a Frank Lloyd Wright of broadcasting architecture at that time, it was evident that he had not designed this station. The studio walls were covered with a grass-green burlap material, the approximate color of the grass on the hills in our pasture back home. It was "furnished" with a battered announcer's desk, a surprisingly good grand piano, and an assortment of chairs that could not be described here in any reasonable length of time.

The transmitter room, which adjoined the studio, was the depository of one of the most remarkable groups of equipment known to broadcasting. Before the Federal Radio Commission had organized broadcasting into a system somewhat similar to its present system, stations operated under very imaginatively different conditions. Owners represented a very wide spectrum of the population. One could find stations ranging from WREC, a ten watt, owned by Wooten's Radio & Electrical Company, in Cold Water, Mississippi (population 1505), to a station owner by Bush Grain Company, in Tuscola, Illinois, that went on the air intermittently and broadcast market reports to farmers in central Illinois. Many churches operated stations which quite often came on the air once each week — Sunday mornings — for an hour and a half, "For the glory of God," and the publicity value to its congregation, then retreated into ecclesiastic limbo for the remainder of the week.

Small stations were frequently battery operated, permitting only short periods of broadcasting, before having to leave the air to recharge their batteries. During this free swinging period, our station had been a "1500 watt" station, but when the reorganization became effective, it became a 100 watt, that shared facilities (frequency and time) with two other stations. One of these on top an apartment hotel was owned by a southern Illinois entrepeneur, who was said to have financed it with profits from a toilet paper business deal, during World War One. The other had been started by a then defunct battery manufacturer, and was located on a third rate hotel on Chicago's near south side.

Transmitting equipment and government regulations, could honestly be described as "casual" at this time. A frequency of plus or minus 500 cycles (Hertz had been permitted to rest peacefully in a Bavarian cemetary until then), was required of broadcast transmitters. It was fortunate that this latitude was permitted. Temperatures of the pre-airconditioning days of the thirties, rose to dramatic levels in the transmitting room, taking the temperature in the crystal oven up with them. Our frequency lowered with the temperature increase, to dangerously low values. This was countered by taking the front off the crystal oven, and directing air from an electric fan into it. Conversely, cold winter nights required an additional light bulb to keep the oven at a suitable temperature.

I will swear and affirm that there has never been a broadcast transmitter with the particular tube line up of this transmatter. A pair of 204A's in a linear amplifier provided the output. Regulations at that time rated all linears as one third efficient, so the power was determined by simply running three hundred watts to this final. The exciter used a 210 crystal oscillator tube, which drove the 860 modulated amplifier. With the possible exception of ancient magnetic modulation, used on arc phone transmitters, or absorption modulation, this had to be the most imaginative modulation system known to man. The 860 was Heising modulated by an 849 (that's right, an 849!) operated in "Class A." With the 849 capable of furnishing 100 watts audio in this service, ample audio was available. Certain instruments that were considered necessary in broadcast stations more sensitive to accepted practices, were not available at this facility. For instance, it was established that a "VI" (volume indicator meter) was completely unnecessary! This was avoided by determining the correct audio level by monitoring the excursions of the plate current of the "Class A" modulator. Ample audio drive was made available to the 849 by a pair of "fifty watt" tubes. In connection with this, it was found that far too much attention is paid to matching tubes in push-pull amplifiers. This speech amplifier might at one time, have a pair of 211's, or a 203A working with an 845. Because the life of these tubes, especially considering their already advanced age, could not be guaranteed, it was common practice (while on the air) to remove one of the tubes in this "balanced amplifier," and substitute another.

High voltage for the various units of the transmitter, was supplied by the most "cosmopolitan" group of supplies known to broadcasting. One of the few more or less conventional supplies, was the one for the exciter unit, which used a pair of 81 rectifiers. The low level speech amplifier used 350 volts of storage "B" batteries, which were recharged during each off the air period.

It was in the main high voltage section that the transmitter really shone! With the traditional "Waste not, want not," philosophy of the station, a giant motor generator set that had furnished power for the 1500 watt transmitter in its glory days, was retained to furnish 2,000 volts to the 204As, and the 849. Due to the loud roar of this rotating equipment, it was located in a loft at the rear of the building.

Placing the transmitter on the air, was not accomplished by mere button pushing. After the filaments had been heated, the exciter and speech amplifier were energized, and the transmitter was finally put on the air, by closing a massive circuit breaker and slowly raising the generator's field rheostat, until the required 2,000 volt voltage was attained.

One law — unwritten, but clearly understood — was that absolutely no spares were to be kept in stock. No spare 204A was available. Although I cannot remember either of these tubes being replaced in the two years I spent at the station, I imagine the necessity of purchasing one of these tubes would have produced ripples in the company's financial department, similar to an audit by the IRS. No extra extravagance such as the purchase of one of these tubes, new, could have been considered without carefully investigating possible used tube availbility.

The three stations sharing time on our frequency, were on the air at irregular times, ranging from one to three hours at a time. One unfortunate afternoon, a

1,000 volt audio by pass condenser gave up to the inevitable, just before we left the air at 5:00 o'clock. Of course it was probably in a moment of fiscal irresponsibility that a condenser was even included in the circuit, for such bypasses are rather like romance in real life — although productive of pleasant "benefits," are not absolutely necessary to the conduct of important affairs. After a street car ride to Newark Electric, one of their famous $1.69 thousand volt, two mike condensers was purchased and we returned to the air at 7:00.

As I have mentioned, no money was wasted on useless instruments or equipment. This policy was continued in purchasing microphones. the station microphone (notice that I am using the singular form here) was an aging Western Electric condenser mike, that was attached to its preamplifier, housed in a large black cylinder, and suspended from the ceiling. When a live program was broadcast, it was hung from another hood at the center of the studio.

Working as a technician/engineer at this place, required a great variety of both skills and natural abilities. Janitorial assistance was expected of all employees. Because several of station's accounts were considered financially less than reliable, I was required to make sure each client had his money available before he was put on the air. Not having been a language major in college, financial negotiations carried on with clients accustomed to dealing in Drachmas, Lira, and Rubles, presented an additional challenge.

During my "varied" career at the station, I was required to perform duties in a number of areas. On certain occasions, I was actually part of the "talent" of the station. One of my shifts was a six hour schedule from midnight to six in the morning. Those of you who have had to work such schedules, will realize that merely staying awake is one of the most difficult requirements. Periodically, I would spell the announcer and take my turn peddling cars sold by the automobile dealership that owned the station.

It is difficult for young persons to imagine what broadcasting — or anything, for that matter — was like before buildings were air-conditioned. Working conditions during sweltering summer weather, dictated clothing that could best be described as informal. Such clothing that, on well-formed young females on the beach, might have been considered deliciously provocative, on us was more adequately described as sloppy. Opposite extremes of temperature, resulted in fuel economy being practiced to great limits. An interesting result of this practice, came one night when our piano player played piano with his driving gloves on.

Vertical antennas had not yet come to broadcasting. Our own station had a pair of windmill-like towers on the roof of the dealership that housed the station. A wide counterpoise, similar in construction to the large flat top antenna, was suspended below it a short distance above the roof. This antenna system was one of the transmitting elements that periodically suffered from the Chicago weather. Located in an industrial/business part of the city, it was subjected to some of the higher grades of pollution available at that time. Keeping this system in tune — like liberty — required "Eternal Vigilance."

One blustery night, wet snow piled up on the insulators of the counterpoise. Leakage of the tired insulators became so great that is became impossible to keep the antenna system in tune. Leaving the announcer to stand by the circuit breaker, with orders to cut the

carrier if final plate current exceeded a safe level, in an action that I had not been told would be required of me when I was hired, I climbed a ladder on a utility pole and onto the roof of the building, and knocked the snow off the counterpoise insulators with a broom, permitting us to get the system back in tune.

As I have mentioned earlier, many dramatic and often unusual, things were done to break the all-night boredom. A PA amplifier and two trumpet speakers that had been installed on the roof over the studio made possible quite a degree of imaginative experimenting. Neighbors may have been awakened in the night or early morning, and been amazed to hear sounds of a dog barking, the broadcast of a football game that had been played months earlier, or aroused by the stirring sounds of a Sousa march that seemed to approach, then go on by their homes.

One of the more popular stunts was made possible by recorded sound effects of a police siren. We peered through the curtains of the window on the street side of the studio, when traffic was observed coming from up the street, and started the "siren" at low level, then increased in volume as the car approached. The unknowing motorist would usually swerve to the curb and wait for a visit from the police. Amazed, when no police appeared, the motorist would resume his way carefully down the street. He was not permitted to continue very long before the "siren" was again activated, and the baffled motorist once again made his way to the curb.

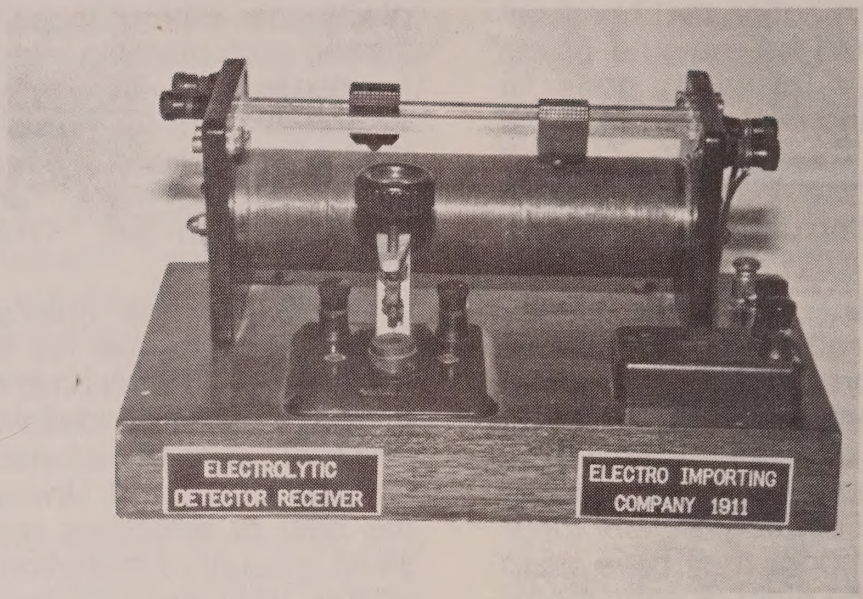
The "Chief Engineer" of this station was a man of unusual talents. An excellent craftsman, he made beautiful ice boats, which he raced weekends while we attempted to keep the aging transmitter on the air. Completely aside from technical qualifications, which we will discuss in greater detail later — and completely unrelated to radio — he was a man of imposing gastronomic accomplishments. One of these he demonstrated each morning after the station finished its eight—thirty to ten schedule. A short distance up the street from the station, he stopped at a humble short order establishment, and began breakfast with five "White Castle" hamburgers.

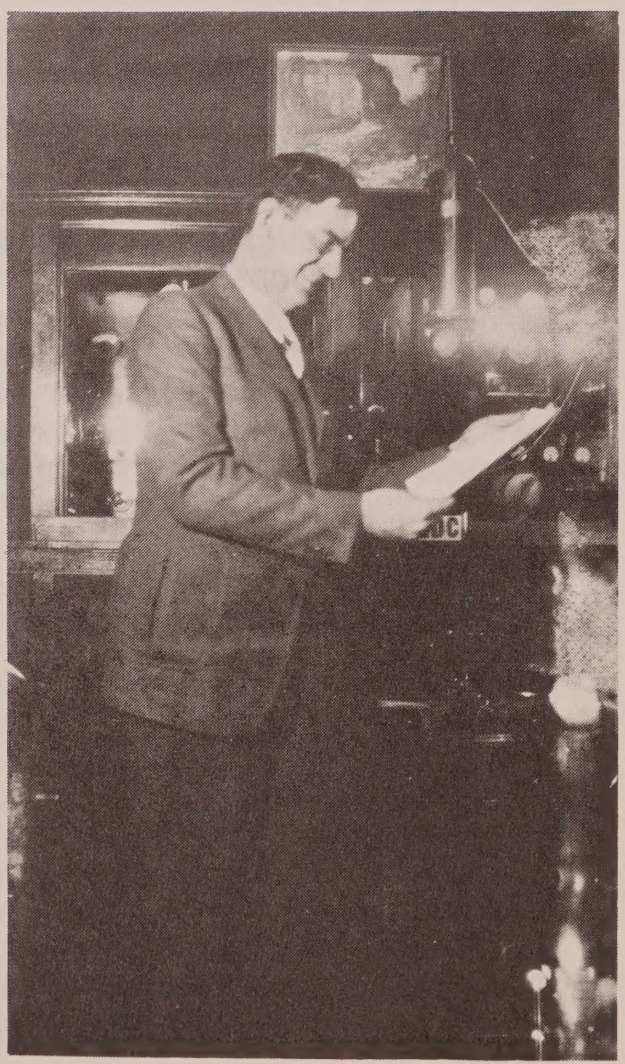
Unfortunately, the chief's technical ability did not equal his boat craftsmanship and gastronomic capabilities. Although I have no idea why the final amplifier went out of neutralization, one day it occurred. Understandably, the best of amplifiers may suffer a small amount of distortion when this occurs. With nine different languages on the air each week, station employees might be forgiven for thinking sounds coming from a slightly oscillating final amplifier, were merely one of these languages they did not understand.

Both technical competence and ingenuity were required to neutralize the final. Lacking more sophisticated — and expensive — instruments, a three watt neon bulb was taped to the end of a yard stick, and used as an RF indicator, permitting the final to be restored to "normal operation."

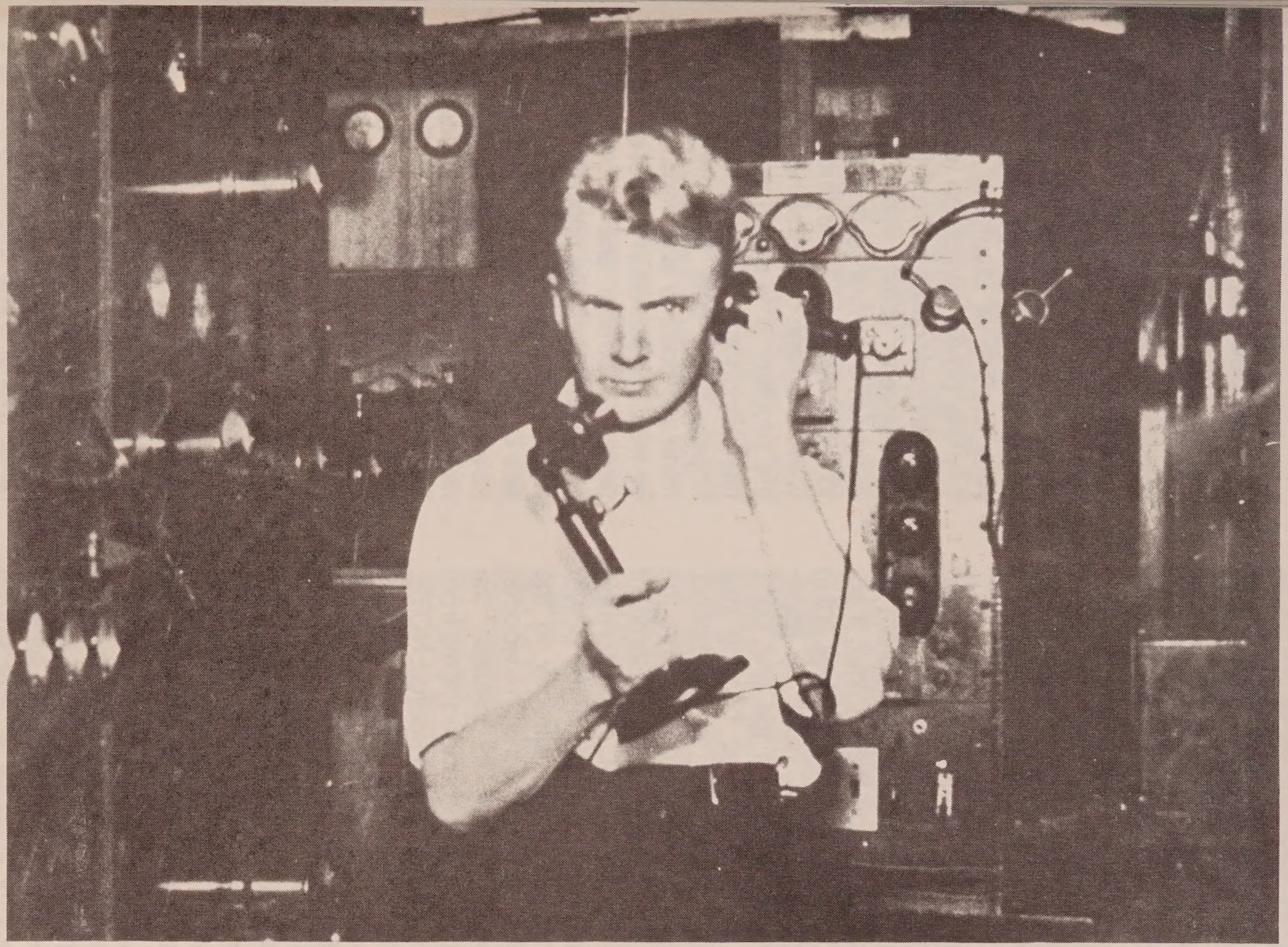
Periodically, when we tend to lose contact with reality, it is necessary that our superiors reestablish realism in our thinking. "Fitz" the "Chief Engineer," of the station, effectively brought me back to reality a short time after the neutralization incident.

When I had just finished removing a tired 845 "fifty watter" from its socket, opposite a 211 in this carefully balanced audio driver amplifier, and while grumbling about the unavailability of spares, as I replaced it with a 203A — the only replacement available — Fitz toyed with the "RF Indicator" yard stick and neon bulb for a moment, then said to me: "Listen. One thing you'll have to remember is that you are not playing around with some ham transmitter now. This is a Broadcast Station!"





Announcer Bob Purcell with the mike suspended for live broadcasts.



W9LC in the transmitter room of the station (WEDC). Note the modern telephone, and Western Electric 8B Speech amplifier in rear.

TROUBLE SHOOTING HINTS

by Chet Wisner, W1VSR

Due to recent interest in collecting radio sets of the late thirties and early forties, here are some hints on trouble shooting and repairing the famous "All American Five" (and Six) that may prove helpful to many newer collectors who have not been involved with care and maintenance of tube-type radios. These suggestions may be helpful in restoring these radios without getting involved in theory and without necessity of a background in the radio repair field.

Naturally, a visual inspection is the first order of business. First, check to see if the set has a tube layout diagram on the base or inside the cabinet; if so, check to be sure that the tubes are in the proper sockets. Next, be especially sure to inspect the line cord. Often the rubber-type coating has become brittle and is crumbling; especially where the cord enters the chassis and the AC plug. Some of these popular AC/DC (transformerless) sets have one side of the power line cord connected directly to the metal chassis and depend on a wooden or plastic cabinet to insulate the operator and the grounded items from contact with the power source. NOTE: More people are killed by electrocution from common 115 volt AC power than from high voltage lines and equipment! Don't become a statistic! NEVER service these sets on a metal surface workbench and NEVER come in contact with grounded objects while handling this type of set!

If the tubes are in the correct sockets and the line cord is in good condition, you can plug the set in. Turn on the power switch, but be ready to switch it off instantly if there is any undue brightness of the tubes, any hissing, sizzling, smoke or substantial noise from inside the cabinet. If none of the tubes light, or if the pilot light flashes and goes out, one or more of the tubes may be bad. If a tube tester is available, test the tubes, or at least check the continuity of each of the tube filaments with an ohm meter. The usual rectifier tube may be a 35Z5 and will have 3 pins connected to the filament/heater. All must show continuity for the tube to operate normally. If a tube tester or ohm meter is not available the next best thing is to have an extra set of tubes from a known working AC/DC Fiver (or Sixer).

After testing or changing the tubes turn the power switch on again. The set may now come to life. If there is an excessive or objectionable hum, turn the volume control up and then down to the minimum. If the hum persists with the volume control at the minimum, the problem is likely an open (dead) filter condenser/capacitor. Take a known good filter capacitor, determine the positive and negative leads on the capacitor(s) in the set and temporarily connect the known good capacitor across the original capacitor. It is best to fit the test capacitor with a pair of mini-alligator clips with rubber covers. Alternatively, you can fit the negative end of the test capacitor with a clip and the positive end with a short (12" approx.) test lead with a prod. Many of the AC/DC sets use a multiple type filter capacitor; one negative lead and 2 or 3 positive leads. Clip the negative end into place and then you can touch the other 2 or 3 positive connections with the prod of the test capacitor. This should greatly reduce the hum level and will indicate whether the original filter capacitor is good or bad. Usually one section will be of a much lower voltage rating than the other two or three sections; this is a cathode bypass unit and has nothing in common with the actual filter sections. Past experience indicates that is is usually quicker and easier to simply clip the defective leads from the

rectifier terminals and press the leads of the new filter against the old terminals, applying a few drops of solder.

After installing new filter capacitors if they were needed, make another test run. If the set is still not operating properly, it may be due to distortion, or mushiness, in the audio output. This is a common trouble and not usually serious. You will find a small coupling capacitor connected from the plate ckt. of the detector tube to the grid of the output tube (often a 50L6 or similar tube). With the multitester on the lowest DC voltage range and with the set running, check the grid connection for any positive voltage. If there is a "+" reading of even a few tenths of a volt, the capacitor should be replaced. If the set still sounds distorted after this operation, no doubt the output tube is a fault, even though it may have tested good in the tube tester. At this point, substitute a known good tube.

Another common problem often found in the power supply section is a shorted filter or bypass capacitor. If you find a 1 or 2 watt resistor of 1,000 to 2,000 ohms in the rectifier circuit that is burned, cracked or exploded, suspect the filter capacitor(s). This resistor usually is bridged between the 2 (or more) sections of the filter capacitor, and that takes the place of a filter choke in a more elaborate power supply.

If the set lights up but has no hum or sound from the speaker, the most common fault is apt to be a defective output transformer. Usually the primary leads are connected between the plate and screen grid of the output tube. With a voltmeter, check to see if there is 75 to 100 volts DC on each end of the transformer primary winding (usually a red and blue lead). If there is no voltage at either the plate or screen grid, replacement is in order.

The secondary or voice coil section of the transformer seldom fails; it is generally the same with the voice coil winding in the speaker, but it is possible. An easy way to check a speaker is to simply apply 1½ volts DC from a flashlight cell to the voice coil winding. You should be able to see the center of the cone move when the cell is connected and disconnected. Sometimes, if a speaker has been wet a time or two, the cone may become distorted or warped and the voice coil may be stuck; if so, it is best to install a new speaker. Now and then you may find an All American Five that has a dynamic (4 wire) speaker. If this needs replacement, simply substitute a 1,000 ohm, 2 watt resistor for the field winding, or if you wish, install a small choke in place of the field winding. If you are a purist, you can follow these instructions to get the trouble shooting done and the set operating and then shop the flea markets and swap meets for replacement speakers or other parts you may wish to replace to retain the set's originality.

FINAL NOTES:

DO NOT tighten the small screws on the sides of the main tuning capacitor/condenser.*

DO NOT tighten the small screws in the small holes in the top of the coil shields.*

*These are there to adjust the alignment of the various circuits of the set. Be sure to study about alignment before adjusting!

The tube filaments are wired in a series, like the old Christmas tree lights. If one filament fails, none will light.

If the rectifier tube is a 35Z5, ensure that both sections of the filament are OK and that you have a known good #47 pilot lamp installed.

Tube socket pins are counted clockwise from the keyway of Octal/Loctal sockets, as viewed from the bottom of the chassis.

A filter condenser/capacitor is usually multiple-type and may have 3 or more sections. Usually two sections are rated at 150 to 200 volts and the 3rd section is for cathode bypass and is usually rated at only 50 volts DC.

The tube most likely to suffer heater/filament burnout seems to be the 12SA7, which is the first RF amp and local oscillator.

Some sets have one side of the power cord connected directly to the chassis; not a good feature. Other sets have a common ground point, with a bypass capacitor connected from that point to the chassis; this is a better way, but the capacitor can short. The best idea is to use caution and not to trust the sets. Do not service them on a metal surface workbench and don't handle them if you are standing on a wet or damp floor. It's a good idea to use an isolation transformer when servicing these sets. (A Variac is usually not an isolation transformer, although it is a useful item for the work bench.) A cheap and easy way to achieve isolation is to take two 12 volt filament transformers and connect them "back to back" - 115 volts AC to 12 volts AC, then 12 volts AC back to 115 volts AC. A pair with a 3 to 5 amp rating should suffice for most cases.

A multistarter is practically a MUST for trouble shooting. You can get one for $8.95 and up from radio distributors stores, or shop for one at the next flea market/swap meet in your area. Often, you can obtain a good quality unit for less than $25.00. Be sure to read the instructions before using and never apply voltage to any of the Ohm/resistance ranges!

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MEL'S CORNER

The peak of the season is due shortly at the AWA Conference held this year at Rochester, New York, where hundreds of Antique Radio buffs will arrive to hear the various speakers discuss their specialties and vie for ribbons in the old time equipment contests.

The flea market had grown to such proportions at Canandaigua that a change was necessary in order to accommodate the crowds that appeared from everywhere!!

As new generations of collectors show up now - has the picture changed in perspective?

At the flea market in former years, the majority of the equipment shown was of the 1920's era or before----. As the market grew into the thirties and forties, it became flooded with what was commonly known as the "Three-Dialer" period!! Try and find a good one today! And-if you're looking around to find anything of the twenties or before- it has to come from the old collectors' collections that have passed on to become "Silent-Key" members.

Recall the day at the AWA auction as the picture became to change when one sturdy character managed to bring along in a pick-up truck a most beautiful big - heavy RCA--floor model console!! Even parked it in the Motel Lobby --too large to get into the auction room. The crowd became amused at the thought of who would even think about collecting floor model radios?

Anyway--it went up for bid. The auctioneer couldn't even get a ten dollar offer for it! The poor disappointed fellow finally hauled it home.

Today-weight and size mean nothing-when we see people hauling home old TV's and anything becoming collectible.

A thought on flea markets----take along a screw driver and a small continuity test meter as these become handy to assure you what your getting. Try to get the background and identity of items as much as is possible. Don't overlook parts and components that are usually reasonable. Who knows when you might need them for future projects?? Watch the arriving cars-- because the real goodies disappear quickly!!

Do you restore old sets?? NEVER TRUST A SINGLE COMPONENT EVEN IF IF LOOKS NEW!!!! So many of us are in a hurry to assemble and see if it works that we overlook that small bit of corrosion or cold solder joint --usually concealed. True continuity with a meter saves hours of wondering why it doesn't work.

The world has many problems constantly on our minds!! But nothing beats restoring old radios to relax our minds--where we must concentrate our efforts--free and clear of the future!

Cheerio!!
Mel

Dear John,

These photos were taken at Jane and Bill Denk's home last week when I presented, on behalf of ARCA, the plaque which honored both of them for their 15 years of "total devotion" as Secretary/Treasurer of the Antique Radio Club of America.

Without any question they are a great couple who worked diligently for our club without fanfare or much recognition. Replacing them will be difficult!.

Ron Frisbie
Treasurer ARCA

Ye Old SWAP SHOP

All ads and Swap Shop items are printed in the Gazette free of charge. We do ask that you write your ad on a separate sheet of paper, type if possible, or print, and be sure to include your name and address. We reserve the right to edit all ads. ARCA is not responsible for any transactions, of course.

FOR SALE: Battery sets, horns & speakers, cathedrals, early AC, catalins & bakelites. Send SASE for NEW list.

WANTED: for Echophone 60 or 80, AK 228 or 567, Audiola 517, Peter Pan cathedral, Erla 22P, Astec 9 tube superhette cathedral, Lyric 21, breadboards, cathedrals, novelty & catalin sets.

Fireside Wireless
1507 Ridge Avenue
New Caslte, PA 16101
(412) 654-9335

WANTED: 1928 Philco 514 (green) flower metal box radio speaker; Philco radio lamp and shade; Radio Vision radio with battle scene and rotating back light; oriental-style cabinet radios.

Gerald Schneider
3101 Blueford Road
Kensington, MD 20895
(301) 929-8593

FOR SALE or TRADE: Antique radios (Farnsworth, Philco, Crosley, etc.) Ham equipment and test equipment - call or write for information.

Dale Unger
R.D. 2, Box 153
Glen Rock, PA 17327
(717) 235-2705

WANTED: AK model 82 chassis and speaker; black or brown 3 tube TA unit; model 10 A RF coils (tags but no binding posts); early vacuum tube unit with binding posts; detector amp (can only with tag); I have a mounted variocoupler for trade. Also need information on 1917 Premier xmtr. and 1917 Johnson & Phillips Mark III tuner (Marconi).

Larry DiBarry
212 North 6th St.
Chambersburg, PA 17201
(412) 263-3804

WANTED: Tube tester, Hickorck 580B wiring diagram - Garod V Neutrodyne - AK50 - Dubilier - 'Duration' RF transformer 220-550 meters - 2 -205D/E Weco tubes - 2-UV199 to 201A tube adapters. Have available like new, battery harness for RCA 28 - Lid for RCA 60 - 2, 1949 Ion gauge tubes 1 new 1 used - want Stylus for Edison DD phonograph.

Tad Drogoski
507 Coal Valley
Jefferson Bend, PA 15025
(412) 466-5950

WANTED: Owners manual or copy of same, for Philco wireless, Control receivers of 1939-AD, mods 39-116 or AD-200 series.

Clay Seidel
900 Grant Avenue
W. Collingswood, NJ 08107

WANTED: Glass enclosed crystal detectors, metal dials 0-180 deg., good Coto Coil model 4500 AFT.

Andrew Mooradian,
5 Pricilla Lane
Winchester, MA 01890

FOR SALE: Atwater Kent 49, battery radio (6 tube), both audio transformers are O.K. tuning belt is O.K. Power cord cut, original finish pretty much intact, finish is scratched - $85

Majestic 461, chrome grille cabinet, not working, front very good, black paint on top is worn, no knobs - $85.

Also many other radios, books & tubes. Send 2 stamps for complete listing to:
Ron Boucher
P.O. Box 541
Goffstown, NH 03045
(603) 497-2988

WANTED: Copy of factory schematic for 1928 Philco Series 5 sets - Also advice concerning filter condenser replacement and alignment. Schematic and any information on German WW2 Siemens K32 receiver.
Bill Noro
126 Evaline Street
Pittsburgh, PA 15235
(412) 371-2988

FOR SALE: Old radios, accessories, and instruments circa 1920-40. SASE for list.
Hank DeQuasie
P.O. Box 356
Limon, CO 80828

WANTED: "Operators" instructions for Hickok, model 800A tube tester.
Bob Barr
3130 Bellanca Street
Columbus, GA 31909
(404) 322-2180 collect

WANTED: 1916 QST's 1920 thru 29 QST's. U.S. Amateur Callbooks 1920 thru 1945 plus 1955.
Bob Arrowsmith
P.O. Box 166
Annandale, VA 22003
(703) 560-7161

WANTED: Giblin-Remler honeycombs with the following windings 25, 35, 50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 750, 1000, 1250, 1500. I will buy or trade for DeForest and Brandston honeycombs. Also looking for Triad tubes and/or boxes of the following type: T-27 (227), T-26 (226), T-71, T71A, T-80, T-22-RF (222), T-01A (201A), T-TEL, T-PEC, T-12, T-12A, T-24-AC, T-45, T-10, T-50, and T-81 (281).
Leonard J. Arzoomanian
61 Columbus Ave.
North Providence, RI 02911
(401) 232-0869

FOR TRADE: Addison; burgandy and orange small Catalin radio for trade only. Will trade for Charlie McCarthy, or Pepsi Bottle or cooler radio, Coca-Cola bottle or cooler radio, or Dr. Pepper cooler radio
Mike Huen
c/o Mike's General Store
52 St. Annes Road
Winnipeg, Manitoba
R2M2Y3 Canada
1-204-255-3463

WANTED: Sams Photo Fact set no. 21 Folder No. 1 and 12. Also service manuals for Heath Impedance Bridge, Eico model 360 TV-FM signal generators, Eico model 232 VTVM, Knight AM signal generator, and Plectron audio oscillator. Zerox O.K.
Daniel Gaidosz
342 West River Road
Orange, CT 06477

WANTED: DeForest CR-100 oak coil rack; DeForest SP-2 & SP-4; DeForest SW-100 wavemeter. Have sale list 90-2 ready - SASE
George Potter
2069 Sienna Trail
Lewisville, TX 75067
(214)-315-2553

FOR SALE: 1946 RCA 65XI (GOR pg. 98) $45 and 1946 Westinghouse H-122 $65.
Both radios have been gone through electronically and play great. Both bakelite cabinets have no cracks and look as good as they sound. The prices include shipping.

WANTED: Original owners manuals for the following radios: Philco 65, 45, 38-12 or 38-9. Zenith H-615 and 6D030.

Robert Schrantz
233 B. North Willow Avenue
West Covina, CA 91790
(818) 962-5796

WANTED: Motorola 5A5 (FOS pg. 113), 51M1U, 51M2U, 52M1U, 52M2U, "PlayMate", and "PlayMate-Juniors", RCA 54B1 mini portable, Emerson Bakelite table radio similar to #336, but with horizontal louvered grill, handle, "bullet" knobs, Zenith Royal 3000 "TransOceanic", top-quality reel-reel recorder such as SONY 777-2, Ampex 960, Lafayette AM-SW AC/DC Bakelite Table Set, circa 1947, top dial, 4 knobs, all in good working condition. Also, 67½ VDC battery eliminators, such as Maxell, Radio Shack, Lafayette; White's Radio Logs, 1936-1956.

A. Sherry
5410 Netherland Avenue
Riverdale, NY 10471

WANTED: Boxed parts or empty boxes with display value. Parts for Western Coil WC-5. Pratt PR1 radio tubes. Manual/schematic for DAYRAD H180 radio test panel. Schematic or interior photo of 1921 Turney 2 tube radio.

Mark Evans
203 Cactus Street
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